

- Condor**, The, XIV, No. 1, Jan.-Feb., 1912.
Emu, The, XI, Part 3, Jan., 1912.
Forest and Stream, LXXVIII, Nos. 1-12, 1912.
Ibis, The (9) VI, No. 21, Jan., 1912.
Journal Maine Orn. Soc., XIII, No. 4, Dec., 1911.
Messenger Ornithologique, No. 1, 1912.
Oologist, The, XXIX, Nos. 1-3, Jan.-Mar., 1912.
Ornithologische Monatsschrift, XXXVI, No. 12, December, 1911.
Philippine Journal of Science, VI, Nos. 4-5, Aug.-Nov., 1911.
Proceedings Acad. Nat. Sci., Philadelphia, LXIII, Pt. 3, 1911.
Records of the Australian Museum, IX, No. 2, Oct., 1911.
Revista Italiana di Ornitologia, I, 1-2, July-Dec., 1911 (Nov., 1911).
Science, N. S., XXXV, Nos. 888-899, 1912.
Wilson Bulletin, XXIV, No. 5, Mar., 1912.
Zoölogist, The (4) XVI, No. 181, Jan., 1912.

CORRESPONDENCE.

The Photography of Birds' Eggs.

TO THE EDITOR OF 'THE AUK':—

Dear Sir:—A number of years ago I published several articles on my methods of photographing the eggs of birds, and at that time the subject was attracting considerable attention. Mr. Henry E. Dresser, then engaged upon his *Eggs of the Birds of Europe*, sent me several of his colored plates of eggs for my criticism with respect to the selection of backgrounds. They were the most beautiful things of the kind I had ever seen, and, in fact, I had one or two of them framed for my study. Besides being far ahead of my own achievements in that line, they were elegantly colored and true to nature. Mr. Dresser never wrote me how he made his photographs of birds' eggs, which latter, as we know, stand among the most difficult of all small, inanimate objects representing biological material that the naturalist seeks to obtain photographs of for illustrative purposes. Some ten or fifteen years ago, when I first undertook to photograph birds' eggs, the success I met with was only partial. In those days I used to stick the blown eggs on to a vertical pane of glass with a piece of soft wax. Care was taken that the glass was free from all blemishes (air-bubbles, etc.), and the eggs could be arranged as desired and as they were to appear in the photograph for reproduction and publication. A background of any selected kind was firmly fixed at a proper distance behind the glass and in a plane parallel to it. In setting up the camera to make the exposures, it was done so that the visual axis or line passing through the lens was perpendicular to these planes, and at a middle point of the egg or eggs to be photographed.

There are several serious objections to this method, which need not be touched upon here, and I have abandoned it long ago.

No one will question the value of perfect photographs of birds' eggs to the general ornithologist, and, if possible, it is highly desirable that he should be able to make them for himself. Therefore no apology appears to be necessary for pointing out here the best way to go about it.

In the last issue of *The Emu* (Jan., 1912), the official publication of the Royal Australian Ornithologists' Union, I published an article on a "Study of Birds' Eggs," which is illustrated by three plates reproduced from recent photographs of mine of birds' eggs from Australia and elsewhere. Mr. Campbell, the editor of *The Emu*, speaks well of the execution of these photographs, and, as I have received many inquiries as to the technique of this class of work, the object of the present letter is to give some of my experiences in regard to it.

To obtain perfect photographs of birds' eggs, natural size, one must use the very best of photographic material, and a camera and lens suitable for the purpose. This is a part of the subject which space cannot here be expended upon, and I take it the photographer is an experienced one, for no amateur should commence by selecting birds' eggs as his subjects, for, with his untrained eye, he will never get them.

By the method here to be described the eggs may be blown or unblown when photographed; or they may be of any size, from an egg of a hummingbird to one of an ostrich; or of any color, and these last may be handled by the use of color screens and isochromatic plates.

When intended for reproduction, it is best to bring them up on the ground-glass somewhat above natural size, so the half-toners can sharpen them by reduction to the size required, be that smaller or the same as the specimen.

It is surprising how many things one must bear in mind when one undertakes to photograph a single, medium-sized egg of a bird; and the difficulties are markedly increased when the attempt is made to photograph eggs of different sizes, perhaps a dozen together, all on the same negative. (*The Emu*, Jan., '12, Plate XX).

Now we will take an example, and say a photograph (in which the eggs are to be somewhat larger than the specimens) of three eggs of the Murre (*Uria t. troile*) is desired, and all three on the same negative. Mr. Edward J. Court, an Associate of A. O. U., kindly loaned me for the purpose, from his superb collection, the very examples I needed. Here a 5 × 8 camera is required, and a 5 × 7 would not have answered. Any high-class lens will do that will not distort the object when made either natural size or somewhat above it. Eggs taken without shadows are usually flat and unattractive. Let the light come from three or more sources, and then control it so as to obtain shadows which will be soft, diffuse, and enhance the beauty of the result. Have the aspect of each egg you desire to show in the resulting negative toward the camera, and, what's more, so that it will show as you want it when photographed.

Where the light is exactly right in your studio, and will remain so sufficiently long for your purpose, spread on the floor your background, which may be a square yard of black velvet, or white blotting-paper, or other material according to the kind of eggs you are to photograph and the result you desire to obtain. Here I used white blotting-paper, a large-sized sheet. Again, governed by the light, place on this background two convenient supports of precisely the same height. Their tops must be smooth, exactly in the horizontal plane, and broad enough to support a perfect pane of glass (very thin, 14 X 20), so that it, too, is horizontal, and will remain perfectly steady in its place. Arrange your vertical camera above this contrivance, so that the imaginary visual line is perpendicular to the floor, and passes through the center of the pane of glass. This latter rests on the supports near the margins of the short sides, thus fulfilling the required conditions as given above.

Best try a single egg first, so as to study the focus, the reflections, the light and the shadows, and numerous other points before placing all three eggs on the upper surface of the glass where they are eventually to rest to be photographed.

Everything depends upon keeping the egg in the exact position you want it during the exposure. It must rest upon the glass in such a way that you can move it at will in any direction, and have it stay there. This I accomplish by placing beneath it a little pile of wheat flour,— just enough so it will not be seen in the resulting negative. This keeps the egg off the glass, thus running no risk of breakage or soiling, permitting the specimen to be instantly turned in *any direction*. In fact, by this simple scheme we can study the egg from all points of view, and have it in the exact position to make a scientific photograph of it. Moreover, when the three eggs are on the glass, resting upon their three little piles of flour, we can in a moment get their axes parallel; study the shadows; rotate them to the sides we wish to photograph, and so on. In the case of eggs the shape of Murre's eggs (see Plate), we must make sure that the apices do not dip down or up, so as to *shorten* any egg in the picture we get. In all cases, the long axis of the egg must be parallel to the plane of the glass upon which it rests, and likewise parallel to the egg or eggs on either side of it, or, in some instances, in the same line with axes of eggs before or behind it. Where eggs of various sizes are taken on the same plate, I support the smaller ones on appropriate stalks of soft wax, so they may be turned in any direction.

These are some of the main points in the photography of eggs to be looked after, and experience and observation must do the rest, as space here will not admit of pursuing the subject any further.

Yours very truly,

R. W. SHUFFELDT.